1.   An optical packet-switched ring network, comprising:

a node including

an optical switch coupled to a fiber of the ring network;

a transmit switch coupled to the optical switch;

a wavelength stacking assembly coupled to the transmit switch;

a receive switch coupled to the optical switch; and

a wavelength unstacking assembly coupled to the receive switch.

2.   The network according to claim 1, wherein the wavelength stacking assembly includes a tunable laser, a circulator coupled to the tunable laser, a demultiplexer coupled to the circulator followed by delay lines and a reflector.

3.   The network according to claim 1, wherein the wavelength unstacking assembly includes a circulator, a demultiplexer coupled to the circulator followed by delay lines and a reflector.

4.   The network according to claim 1, wherein the transmit switch includes a buffer for storing packets, and the receive switch includes a buffer for storing received packets.

5.   The network according to claim 1, wherein the node performs a credit-based MAC protocol.

6.   The network according to claim 5, wherein the node further includes an admission controller for determining whether bandwidth requests are accepted based upon available frame capacity.

7.A method for transmitting and receiving stacked packets on a ring network comprising:

stacking packets of varying wavelengths to form a composite transmit data packet;

buffering the transmit data packet in a transmit switch;

transmitting the transmit data packet onto the ring network via an optical switch;

receiving a receive data packet via the optical switch;

buffering the receive data packet in a receive switch; and

unstacking the receive data packet.

8. The method according to claim 7, further including stacking the transmit data packet using a tunable laser, a circulator coupled to the tunable laser, a demultiplexer coupled to the circulator followed by delay lines and a reflector.

9. The method according to claim 7, further including unstacking the receive data packet using a circulator, a demultiplexer coupled to the circulator followed by delay lines and a reflector.

10. The method according to claim 7, further including setting the optical switch and the transmit switch to a cross state to put the transmit data packet on the ring network.

11. The method according to claim 7, further including setting the optical switch and the receive switch to a cross state to obtain the receive data packet from the ring network.

12. A method for making decisions when to transmit and receive data packets, comprising:

making transmission reservations in time via a control channel;

dividing time into cycles; and

scheduling transmission reservations, packet transmissions and receptions.

13. The method according to claim 12, further including making a transmission reservation by a node in a first potentially empty slot of a current cycle on the control channel for a destination node that has not been addressed in the cycle.

14. The method according to claim 12, further including stacking a composite packet in a next cycle after its transmission has been reserved.

15.   A method according to claim 12, further including storing a packet until it is transmitted two cycles after its transmission has been reserved.

16.   A method according to claim 12, further including receiving a packet from the ring by a node two cycles after its reservation has been observed on the control channel.

17.   A method according to claim 12, further including storing the packet until it is unstacked at a receiver in the next cycle after it has been received.